

High visibility flow test liquid (TL1)

Jacques Jonsman, Joninn ApS.

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To focus our efforts on our innovative products, we have decided to put our high visibility flow test liquid (TL1) in the public domain. The formulation is made freely available for anyone to use, all we ask is that you make a reference to us when you use it.

Product concept

We developed the high visibility flow test liquid, to visualize flow in places where it is difficult to see such as microchannels, capillaries and tiny cracks and leaks.

The goal was to make the test liquid:

1. Highly visible with flow properties identical to water.
2. So safe that you can get away with drinking it.

Formulation

1 liter of filtered deionized water

1.0 gram Brilliant Blue G-250 (CAS 6104-58-1)

3.8 gram NaCl (CAS 7647-14-5)

Function of each ingredient

- Brilliant Blue G-250 is a common blue food dye, safe to eat and deep blue. Only use pure Brilliant blue in powder form.

Many people use liquid food dyes, bought in their local supermarket, for flow testing. This is inadvisable because these products are manufactured without control of viscosity and surface tension, all properties essential for accurately measuring flow. The viscosity is usually significantly higher than water since the liquids are based on glycerol, and the surface tension can vary $\pm 25\%$.

- NaCl adjusts the surface tension of the test liquid to the surface tension of pure water. Brilliant Blue is a mild surfactant, and without the salt the surface tension would be slightly too low.

Notes

- Before use you should invert the container a few times to ensure homogeneity of the liquid.
- The test liquid contains no sterility preservative, and growth of bacteria, fungus etc. is thus possible. Use common sense and good laboratory practice, to avoid contamination of the test liquid. Discard the liquid if you see any signs of haze, debris, precipitates etc.
- The test liquid may give permanent stains on clothes and labware.
- Obviously, you shouldn't drink this test liquid. It may be safe to drink, but just don't!